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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/524,985  
Filing Date: October 12, 2005  
Appellant(s): SCHRADER, MARTIN

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Paul S. Hunter  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/18/2010 appealing from the Office action mailed 5/28/2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 26-33 and 35-41.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN

REJECTIONS.” New grounds of rejection (if any) are provided under the subheading “NEW GROUNDS OF REJECTION.”

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant’s brief.

**(8) Evidence Relied Upon**

6,603,444	KAWANAMI ET AL.	8-2003
5,731,909	SCHACHAR ET AL.	3-1998
2001/0004279	SAKO ET AL.	6-2001
5,608,554	DO ET AL.	3-1997

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26, 29, 30, 33, 35, 36, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawanami et al. (US 6,603,444).

Regarding claim 26, Kawanami et al. disclose a display device comprising: a substrate layer (102) comprising substantially transparent material; a pinhole mask (109) comprising an

array of pinholes, wherein each pinhole of the array of pinholes is associated with a pixel of the display device; and an array of electrically controllable lenses (106) positioned between the substrate layer and the pinhole mask to control the divergence of light received through the substrate and the lenses towards the pinhole mask, wherein the light is focused into a pinhole by a lens of the array of electrically controllable lenses to illuminate the associated pixel and is transmitted unfocused by the lens to darken the associated pixel (for example, see abstract and Figs. 1A and 1B).

Regarding claim 29, Kwanami et al. disclose the display device of claim 26, wherein a brightness of the associated pixel is controlled using a focus value of the lens (for example, see abstract and Figs. 1A and 1B).

Regarding claim 30, Kawanami et al. disclose the display device of claim 26, wherein a brightness of the associated pixel is controlled through adjustment of an on-off duty cycle of the lens (for example, see abstract and Figs. 1A and 1B).

Regarding claims 33 and 41, Kawanami et al. disclose a method of operating a display device, the method comprising: receiving light in a display device at an array of electrically controllable lenses (106); determining whether to illuminate a pixel of the display device; and if it is determined to illuminate the pixel, controlling a lens of the array of electrically controllable lenses to focus the received light into a pinhole of an array of pinholes; and if it is determined not to illuminate the pixel, allowing the received light to pass through the lens unfocused wherein the unfocused light is substantially blocked by a pinhole mask including the array of pinholes (for example, see abstract and Figs. 1A and 1B).

Regarding claim 35, Kawanami et al. disclose the method of claim 33, further comprising controlling a brightness of the pixel using a focus value of the lens (for example, see abstract and Figs. 1A and 1B).

Regarding claim 36, Kawanami et al. disclose the method of claim 33, further comprising controlling a brightness of the pixel by adjusting an on-off duty cycle of the lens (for example, see abstract and Figs. 1A and 1B).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27, 28, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. (US 6,603,444) in view of Schachar (US 5,731,909).

Regarding claims 27 and 28, Kawanami et al. disclose the claimed invention of claim 26, but do not specifically recite that the lens comprises a liquid crystal based switchable lens made of deformable viscoelastic gel material. However, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Schachar teaches that liquid crystal based switchable lenses made of electrically deformable viscoelastic gel material are known in the art of electrically controllable lenses (for example, see col. 2, lines 18-25 and col. 5, line 44 – col. 6, line 12). Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have reasonably contemplated using a liquid crystal based switchable lens

made of a deformable viscoelastic gel material for the lens, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claims 37 and 38, Kawanmi et al. disclose the claimed invention of claim 26, but do not specifically recite that the lens comprises a liquid crystal based switchable lens made of deformable viscoelastic gel material. However, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Schachar teaches that liquid crystal based switchable lenses made of electrically deformable viscoelastic gel material are known in the art of electrically controllable lenses (for example, see col. 2, lines 18-25 and col. 5, line 44 – col. 6, line 12). Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have reasonably contemplated using a liquid crystal based switchable lens made of a deformable viscoelastic gel material for the lens, since the selection of known materials for a known purpose is within the skill of the art.

Claims 31 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. (US 6,603,444) in view of Sako et al. (US 2001/0004279).

Regarding claim 31, Kawanami et al. do not specifically recite the pinholes comprising a reflective mirror configured to reflect light back in the direction of the lens. However, reflective-type displays are a known alternative to transmissive-type displays, as evidenced by the Sako reference. Sako shows a reflective-type display in figure 1, wherein the pinhole comprises a reflective mirror (107) configured to reflect light back in the direction of the source of the light and shows the alternative transmissive-type display in figure 6, wherein light generated from a backlight (115) is transmitted through the pinhole (117) of the mask. Reflective-type displays

may use ambient light instead of a backlight device which allows less power consumption and allows for a display that is light and easy to carry. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide reflective mirrors positioned in the pinholes of the mask of the Kawanami reference such that the mirrors reflect the light back in the direction of the lenses in order to provide a lower power consuming reflective-type display device, wherein ambient light is used as the light source of the device.

Regarding claim 39, Kawanami et al. do not specifically recite the pinholes comprising a reflective mirror configured to reflect light back in the direction of the lens. However, reflective-type displays are a known alternative to transmissive-type displays, as evidenced by the Sako reference. Sako shows a reflective-type display in figure 1, wherein the pinhole comprises a reflective mirror (107) configured to reflect light back in the direction of the source of the light and shows the alternative transmissive-type display in figure 6, wherein light generated from a backlight (115) is transmitted through the pinholes (117) of the mask. Reflective-type displays use ambient light instead of a backlight device which allows less power consumption and allows for a display that is light and easy to carry. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide reflective mirrors positioned in the pinholes of the mask of the Kawanami reference such that the mirrors reflect the light back in the direction of the lenses in order to provide a lower power consuming reflective-type display device, wherein ambient light is used as the light source of the device.

Claims 32 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al. (US 6,603,444) in view of Do et al. (US 5,608,554).



Regarding claim 32, Kawanami et al. disclose the display device according to claim 26, but do not specifically teach the use of phosphors, and instead teach the light directed through the pinhole passing through color filters. However, Do et al. teach replacing color filters with different types of phosphor materials (8) in order to provide a fluorescent display device (for example, see Fig. 2). Do et al. teach that using phosphor materials instead of color filters provides a display with a greater luminance (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the color filters of the Kawanami reference with phosphor materials in order to provide a brighter display with a wider viewing angle.

Regarding claim 40, Kawanami et al. the method of claim 33, but do not specifically teach the use of phosphors, and instead teach the light directed through the pinhole passing through color filters. However, Do et al. teach replacing color filters with different types of phosphor materials (8) in order to provide a fluorescent display device (for example, see Fig. 2). Do et al. teach that using phosphor materials instead of color filters provides a display with a greater luminance (for example, see the abstract). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the color filters of the Kawanami reference with phosphor materials in order to provide a brighter display with a wider viewing angle.

#### **(10) Response to Argument**

As stated in the Final Office Action, “the claimed limitation, “unfocused”, has been understood to mean that the light passing through the lens is unfocused with respect to the pinholes, and is allowed to hit the pinhole mask, which is consistent with the teachings of the

written disclosure.” The Examiner maintains his interpretation of the claimed functional limitation “unfocused”. Furthermore, it is noted that there is no specific definition for the term “unfocused” supplied by the Appellant in the current disclosure, and in fact, the term “unfocused” is not even recited once in the disclosure, as originally filed. All of the teachings of the current written disclosure are concerned with the focus of the light with respect to the pinholes of the mask.

The Appellant continues to argue that the light of the current invention is completely undisturbed when traveling through the electrically controllable lens.

This argument is not persuasive because the written disclosure provides no teaching or explanation of how such a feature can be or is achieved. The figures of the current disclosure are schematically drawn (paragraphs [0018-0020]) and cannot be relied upon to show support for such a feature. Figures 1b and 2b, associated with off-states of the device, do not even include a representation of the electrically controllable lenses L.

The Appellant cites column 3, lines 41-57 of the Kawanami patent, emphasizing Kawanami’s teaching that electrically controllable lens (electrolyte solution 107 and the first liquid 106) refract incident light at the interface of the first solution 106 and 107 and the light is hardly converged such that most of the light is blocked by the pinhole mask to produce a dark display (dark pixels) when the electrically controllable lens is in the off-state (provided with V = 0).

This argument is not persuasive because this disclosure of the reference is consistent with paragraph [0025] of the Applicant’s disclosure that states, “When the lenses L are switched off (FIG. 1b), the light will pass the substrate S together with the switchable lenses L substantially

undisturbed, i.e. without significant change in divergence and fall unto the pinhole mask M. In this case most of the light will be blocked and only a small fraction of light passes through the pinhole mask M. Hence, the pinholes H can be observed as dark pixels.”

The Examiner respectfully disagrees with the Appellant’s assertion that Kawanami’s recitation that the “incident... light is hardly converged” when in the off-state implies that the light is converged to some degree on the hole (pinhole) of the mask. Nowhere does Kawanami state that the light is converged, to any degree, on the pinhole of the mask. Figure 1A does not show any of the light being converged into the pinhole, and only shows the completely undisturbed light (center beam that remains perpendicular to the mask at the point of the pinhole) passing through the pinhole of the mask, while the substantially undisturbed (hardly converged) light falls unto the pinhole mask and is blocked.

Paragraph [0023] of the current disclosure recites, the “electrically switchable lenses L, which lenses can be each individually addressed in order to electrically alter their refractive or diffractive optical power to change the divergence of the light traveling through the lenses L.” The electrically controllable lenses 106 of the Kawanami reference operate in the same manner as described by the current disclosure, and as claimed in claim 1. Kawanami et al. clearly teach a display device comprising an array of electrically controllable lenses 106... wherein the light is focused into a pinhole (FIG 1B) to illuminate the associated pixel and is transmitted unfocused with respect to the pinholes (FIG. 1A), such that the light hits the mask 109, to darken the associated pixel (see col. 3, line 58 – col. 4, line 7).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Anthony Perry/

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